SPECIFICATION

ACCESS SYSTEM AND ACCESS METHOD

5   Technical Field

[0001] The present invention relates to an access system and an access method for accessing information which is dispersedly located in an IP network such as the Internet.

Background Art

10 [0002] In the prior art, Web servers are dispersedly located in an IP network such as the Internet, and it is possible to acquire information data in the form of an HTML (HyperText Markup Language) file or the like, browse information, and receive services.

15 [0003] However, it can be beneficial for an information delivery site to have users preferentially access the address of the own site in view of providing the service. For example, in many cases, it is required for telecommunications carriers and service providers, which provide rental devices used to

20 access an IP network and the like, to have users access their own WEB pages in view of providing support to use the rental devices.

[0004] In order to meet this requirement, from the past, it is proposed to use a system configuration which forcibly replaces

25 the address designated by the user and redirect the address to a predetermined address (for example, as described in PCT Published Japanese Translation No. 2003-513524). In the case of the technique as described in this publication, a gateway device intercepts a request of the user for accessing a

30 destination address, and let the user access a Web page having a different address than the destination.

[0005] However, in the case of the technique as described in the above publication, since all the user requests are uniformly redirected, there is a problem that, even in the

35 case where the service provider does not intend, the user is forced to access a different address than designated by the user request so that it lacks in practicality.

[0006] On the other hand, under a maintenance service, a support service in case of trouble or the like service, the

maintenance information, support information and the like which is useful for the user can be delivered by the redirection, but in this case it may be appropriate to redirect the request only for particular users such as target

5   users of maintenance or support but not for non-target users.

Summary of The Invention

[0007] The present invention is invented by taking into consideration the above situation, and it is an object thereof to provide an access system and an access method in which it

10   is possible on the service providing side to control a redirect operation.

[0008] In order to accomplish the object as described above, the present invention comprises an access system or method operable to access information data, which is dispersedly

15   located in an IP network constructed by connecting communication lines with each other, from an access device through the communication lines, wherein there are a browser section operable to access the address of information data as input, and acquire and browse the information data on the

20   access device side; a storage section provided in the access device and operable to store the address of the predetermined information data; a trigger receiving section provided in the access device and operable to receive a trigger signal from the IP network side; an address replacement section provided

25   in the access device and operable to replace the address of the information data as input with the address of the predetermined information data stored in the storage section on the basis of the trigger signal as received; and an access section provided in the access device and operable to access

30   the address as designated by the browser section or the address which is used for the replacement by the address replacement section.

[0009] In accordance with the present invention as described above, it is controlled by transmitting the trigger signal

35   from the IP network side to perform the so-called redirection, i.e., replace the address as designated by the browser section with the address of the predetermined information data, and thereby it is possible to control on the service provider side whether or not the redirection is to be executed.

[0010] A second invention is related to an access system or method operable to access information data, which is dispersedly located in an IP network constructed by connecting communication lines with each other, from an access device through the communication lines, wherein there are a browser section operable to access the address of information data as input, and acquire and browse the information data on the access device side; a storage section provided in the access device and operable to store the address of the predetermined information data; an IP connection monitoring section provided in the access device and operable to monitor whether or not it is possible to connect with the IP network; an address replacement section provided in the access device and operable to replace the address of the information data as input with the address of the predetermined information stored in the storage section when it is determined impossible to connect with the IP network; and an access section provided in the access device and operable to access the address as designated by the browser section or the address which is used for the replacement by the address replacement section, wherein the access section is provided with the functionality of making a dial-up connection through a communication line (hereinafter referred to as "bypass communication line") different than the communication line that is determined not available for connection and serves to access the address used for the replacement through the bypass communication line.

[0011] In accordance with the present invention as described above, when a failure occurs on the communication line, it is possible to perform the redirection to information data such as a maintenance service page or a support service page, and deliver the predetermined information only to the users who need maintenance and support.

[0012] A third invention is related to an access system or method operable to access information data, which is dispersedly located in an IP network constructed by connecting communication lines with each other, from an access device through the communication lines, wherein there are a browser section operable to access the address of information data as input, and acquire and browse the information data on the

access device side; an internal storage section provided in the access device and operable to store and save an internal page which is accessible by the browser; a storage section provided in the access device and operable to store the address of the internal page; an IP connection monitoring section provided in the access device and operable to monitor whether or not it is possible to connect with the IP network; an address replacement section provided in the access device and operable to replace the address of the information data as input with the address of the internal page stored in the storage section when it is determined impossible to connect with the IP network; and an access section provided in the access device and operable to access the address as designated by the browser section or the address which is used for the replacement by the address replacement section.

[0013] In accordance with the present invention as described above, when a failure occurs on the communication line, it is possible to perform the redirection to the internal page such as a maintenance service page or a support service page, and deliver the predetermined information only to the users who need maintenance and support even in an environment where no communication connection is available.

[0014] In the case of the above invention, it is preferred that the trigger receiving section receives the trigger signal from a management server which is located on the IP network and provided with the functionality of transmitting the trigger signal, and that the trigger signal is transmitted to a predetermined user who is selected. In this case, it is possible to perform the redirection only for the target users arbitrarily selected on the service provider side, and deliver necessary information to particular users.

[0015] In the case of the above invention, it is preferred that the predetermined user who is selected is a user who resides within a predetermined area, and that the information data connectable in response to the trigger signal is maintenance information in the area. In this case, the maintenance information applicable only in a predetermined local area is delivered only to the target users, and thereby unnecessary information delivery can be avoided.

[0016] In the case of the above invention, it is preferred that the information data connectable in response to the trigger signal is advertisement information to be delivered to the predetermined user who is selected. In this case, it is possible to select a user class and perform an effective advertisement and commercial message.

[0017] In the case of the above invention, it is preferred that the browser section is provided with the functionality of combining and outputting broadcast content, which is received through radio waves, and the network content, which is received through the IP network, and that the information data connectable in response to the trigger signal is the network content which is combined with the broadcast content. In this case, in the case of the service for viewing and listening broadcast content and network content in one screen, it is possible to perform the redirection as described above and provide a variety of services of combining broadcast content with network content.

[0018] In the case of the above invention, it is preferred that commercial which is combined with the broadcast content is combined by replacing a commercial message included in the broadcast content with it. In this case, it is possible on the service provider side to combine an arbitrary CM with broadcast content so that a variety of CM effects can be expected.

[0019] In the case of the above invention, it is preferred that the broadcast content is received by a receiver which is detachably provided in the device in which the browser section is operated, and that the broadcast content is combined by the browser section. Also in this case, viewing and listening broadcast content is enabled even with a personal computer which is not provided with the capability of receiving broadcast radio waves, and thereby it is possible to broadly provide the service on the basis of the combination of broadcast content and network content.

[0020] In the case of the above invention, it is preferred that the broadcast content is received by an antenna installed alongside a street, and that the signal as received is rebroadcasted for acquisition. In this case, even in the area

where broadcast radio waves may not sufficiently be received, it is possible to broadly provide the service on the basis of the combination of broadcast content and network content.

[0021] In the case of the above invention, it is preferred that the information data is uploaded to a backup server which is located on the IP network as a folder service. In this case, it is possible to perform the redirection to a folder for backup provided on the IP network and perform a backup operation of necessary data on the service provider side without waiting for user's operations.

[0022] In the case of the above invention, it is preferred that the backup server stores only differences between the data as uploaded and the data already accumulated in the backup server. In this case, since only the difference data is baked up, it is possible to make effective use of the resource of the backup server.

[0023] In the case of the above invention, it is preferred that the failure location and failure type are identified on the communication line in accordance with the response status of a signal which is transmitted to the access section, and that the predetermined information data is one of different items of information data corresponding to the failure location and failure type which are identified. In this case, the service provider can make the support page be accessed in correspondence with the failure occurring location and provide an appropriate support service.

[0024] In the case of the above invention, it is preferred that the failure location and failure type are identified on the communication line in accordance with the response status of a signal which is transmitted to the IP network, and that the internal page is one of different pages corresponding to the failure location and failure type which are identified. In this case, even in an environment where the connection with the IP network cannot be made, it is possible to show the support page in correspondence with the failure occurring location and provide an appropriate support service.

[0025] In the case of the above invention, it is preferred that an internal log recording section is provided to record log data which is input and output through the internal page,

and a log transmitting section operable to transmit the log data to the management server in response to a request from the management server which is located on the IP network. In this case, even in an environment where the connection with the IP network cannot be made, it is possible to collect the opinions of the users, compile the opinions in the management server, and then enhance the support.

[0026] In the case of the above invention, it is preferred that the internal page contains a response message to a predetermined inquiry, and that the log data is recorded in an interactive format between the inquiry and the response message. In this case, it is possible to record the opinions of the users in an interactive format and realize a more appropriate support.

[0027] In the case of the above invention, it is preferred that the internal page provides the functionality of transmitting and receiving the information data between the internal page and the management server provided on the IP network, and that the access section is provided with the functionality of accessing the information data in the management server through the bypass communication line. In this case, it is possible to provide a user support, when a trouble occurs, by the use of the information which is locally stored and the information which is stored on the management server side, and realize a more enhanced support in the association between the local device and the server device.

[0028] In the case of the above invention, it is preferred that the information data in the management server contains an input section for inputting diagnostic items relevant to the communication by the access system, and that the management server is provided with an application running section operable to output a diagnostic message in accordance with the types and combination of the diagnostic items as the information data of the management server. In this case, it is possible to acquire necessary information for identifying the failure location through the input operation of the user and improve the quality of support by the use of more effective user information.

[0029] In the case of the above invention, it is preferred

that the application running section is provided with the request analyzing functionality of determining the setting information of the respective devices on the communication route and the information on the communication environment in accordance with the types and combination of the diagnostic items as input to the input section, and that the management server outputs the diagnostic message on the basis of the information acquired in accordance with the determination. In this case, it is possible to improve the quality of support by analyzing the diagnostic items acquired by the user operation.

[0030] In the case of the above invention, it is preferred that the application running section is provided with a database for accumulating the address information and authentication information for identifying the user and the device used by this user in association with the local information and communication environment information of the user, and the functionality of acquiring the address information and authentication information of the accessing user when accessing the information data, and that the management server acquires the information about the communication environment peculiar to the user from the database on the basis of the determination made by the request analyzing functionality and the information determined by the address information and authentication information and outputs the diagnostic message on the basis of the information as acquired. In this case, it is possible to identify the target users of the support and analyze the correlation between the failures which occur and the users.

[0031] In the case of the above invention, it is preferred that the application running section is provided with the device setting information acquiring functionality of collecting the setting information of respective devices on the communication route in relation to the diagnostic items, and that the device setting information acquiring functionality serves to acquire the setting information of the device, which is relevant, on the basis of the determination of the request analyzing functionality. In this case, it is possible to automatically investigate each device on the communication route as to in what location of the

communication route a failure occurs and in what situation the failure occurs.

[0032] In the case of the above invention, it is preferred that the device on the communication route includes a DSLAM device operable to aggregate and integrate a plurality of communication lines, a DHCP device operable to automatically assign, to a terminal device used for communication, the information necessary for connection such as an IP address, and a router device operable to determine a communication route and relay data between networks when establishing communication. In this case, it is possible to perform maintenance for the device located at each node of the communication route.

[0033] In the case of the above invention, it is preferred that there are a rule definition file in which a correlation is defined, and a rule updating section operable to update the rule definition file on the basis of the analysis result. In this case, it is possible to provide the inference, as data, about determining the cause of the failure which occurred and providing a possible solution, and provide a more improved support.

[0034] In the case of the above invention, it is preferred that the storage section stores the address of the original information data which is replaced when the address replacement section replaces the address, that the address replacement section halts the replacement to the address of the predetermined information data on the basis of a release control signal as received from the IP network side, and that the access section accesses the address of the original information data stored in the storage section when the address replacement section halts the replacement to the address. In this case, after the redirection is finished or halted, the user can access the address originally intended and return to the state just before the redirection is performed.

[0035] In the case of the above invention, it is preferred that there is an authentication section detachably provided in the device, in which the browser section is operated, and given a unique identifier for accessing the predetermined

information data, that the address replacement section performs the replacement of the address when it is detected that the authentication section is inserted into the system, and that the access section performs authentication by the use
5 of the identifier and accesses the predetermined information data. In this case, it is possible to provide the service through the redirection only to a particular user by delivering an identifier through the authentication section, which is detachably provided, and performing the
10 authentication for access by the use of the identifier.

Brief Description Of The Drawings
[0036]
[Fig. 1] Fig. 1 is an explanatory view for showing the
15 functionality of the terminal equipment in accordance with a first embodiment, in which (a) is a block diagram for showing the relationship among the terminal equipment and peripheral devices, and (b) is a flow chart for showing the operations of them.
20 [Fig. 2] Fig. 2 is an explanatory view for showing the overall configuration of the information delivery system in accordance with a second embodiment.
[Fig. 3] Fig. 3 is an explanatory view for showing the functionality of the combination output section in accordance
25 with the second embodiment.
[Fig. 4] Fig. 4 is an explanatory view for showing the backup system in accordance with a first embodiment, in which (a) is a block diagram for showing the relationship between a terminal device and a backup server, (b) is a block diagram
30 for showing the structure of the backup server, and (c) is a block diagram for showing the structure of an HDD management section.
[Fig. 2] Fig. 2 is a flow chart for showing the operation process of the backup service in accordance with the
35 first embodiment, in which (a) shows the operation on the terminal side and (b) shows the operation on the server side.
[Fig. 6] Fig. 6 is an explanatory view for showing the overall configuration of the information delivery system in accordance with an exemplary modification of the second

embodiment.

[Fig. 7] Fig. 7 is an explanatory view for showing the overall configuration of the support system in accordance with a third embodiment.

[Fig. 8] Fig. 8 is a block diagram showing the internal configuration of the management server in accordance with the third embodiment.

[Fig. 9] Fig. 9 is a block diagram showing the operation of the inference application in accordance with the third embodiment.

[Fig. 10] Fig. 10 is a flow chart for showing the operation process of the support system in accordance with the third embodiment.

[Fig. 11] Fig. 11 is an explanatory view for showing the local support in accordance with the third embodiment.

[Fig. 12] Fig. 12 is an explanatory view for showing the diagnostic items to be input as the server support in accordance with the third embodiment.

[Fig. 13] Fig. 13 is an explanatory view for showing the result of inference as the server support in accordance with the third embodiment.

Best Mode for Carrying Out the Invention
[0037] [First Embodiment]

An embodiment of the present invention will be explained with reference to drawings. Fig. 1(a) is an explanatory view for showing the overall configuration of the access system in accordance with the present embodiment.

[0038] The access system in accordance with the present embodiment is a system for accessing information data sources (servers 41 and 42) which are dispersedly located in an IP network 3, and comprised mainly of browser software 14a which is run on a terminal device 1 such as a personal computer, and a terminal equipment 2 for accessing the IP network 3.

[0039] Particularly, the server 41 is provided, as a management server, with the functionality of controlling starting or halting redirection in the terminal equipment 2, and serves to select the terminal equipment of a predetermined user and transmit a trigger signal for starting redirection

and a release control signal for halting the redirection.

[0040] The IP network 3 is a distributed communication network which is constructed by connecting a variety of communication lines (a telephone line, an ISDN line, a public network such as an ADSL line, a dedicated communication line, and a radio communication network) to each other by the use of the communication protocol TCP/IP. This IP network 3 may be a LAN such as an intranet (a network within a company) based on 10BASE-T, 100BASE-TX or the like.

[0041] The terminal device 1 is an arithmetic operation unit provided with a CPU and can be implemented by a general purpose computer, for example, a personal computer, or a dedicated device, inclusive of a mobile computer and a PDA (Personal Digital Assistance). In addition to this, as shown in Fig. 1(a), the browser software 14a is installed for receiving network content from Web servers and the like which are dispersedly located in the IP network 3, and for browsing the network content.

[0042] The browser software 14a is an application for accessing an address (URL) as input and acquiring and browsing information data such as a WEB page, and serves to download HTML (HyperText Markup Language) files, image files, music files and so forth from the Internet in order to parse the layout, display and play back them. It is also possible to use a form so that the user can transmit data to the Web server, and invoke application software written in JavaScript (registered trademark), Flash, Java (registered trademark) and so forth.

[0043] The terminal equipment 2 is an equipment for connecting the terminal device 1 with the IP network 3, and provided with a modulator demodulator function for converting digital data into a voice signal and vice versa when connecting with a telephone line, a storage section 24 for storing the address of predetermined information data, an address replacement section 22 for replacing (redirecting) the address of the information data as input (for example, the service unsupporting server 42) with the address of a predetermined information data (for example, the service supporting server 41) stored in the storage section 24 on the basis of a trigger

signal which is received from the IP network 3 side, and an access section 23 for accessing the address which is designated by the browser software 14a or the address which is used for the replacement by the address replacement section 22.

[0044] Meanwhile, in the case of the present embodiment, the information data to be redirected includes, for example, maintenance information of a communication line or a server, support information for users and other advertisements and commercial messages, and the server 41 serves to deliver maintenance information and support information for the users in the local area under the influence where maintenance is applicable, and deliver advertisements and commercial messages to the users belonging to a particular user class.

[0045] The storage section 24 is provided with the functionality of storing an internal page which is described as an HTML file or the like, and the address of this internal page can be stored as the address of the predetermined information data for replacement as has been discussed above. By this configuration, it is possible to set the destination of the redirection to the terminal equipment 2 itself and provide necessary information even when the communication line is disconnected.

[0046] Also, in the case of the present embodiment, the storage section 24 stores the address of the original information data when the address is replaced by the address replacement section 22, the address replacement section 22 halts the replacement with the predetermined information data on the basis of the release control signal received from the IP network 3 side, and the access section 23 accesses the address of the original information data when the address replacement section 22 halts the replacement of the address.

[0047] Incidentally, the address replacement section 22 is provided with a trigger signal receiving section 22a which receives the trigger signal and a release control signal receiving section 22b which receives the release control signal, and provided with the functionality of performing the replacement in response to the trigger signal and halting the replacement in response to the release control signal. In addition to this, the trigger signal and the release control

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signal include data indicative of a start time for replacement, a period and an end time for replacement, and the address replacement section 22 performs starting and halting the replacement at these times as designated. By this configuration, even when the communication line is temporarily disconnected due to a maintenance work, the redirection is performed in the time as designated so that the internal page stored in the storing section 24 is accessed to provide the user with the explanation of the reason for the failure.

[0048] The system configuration constructed as described above accesses the information data by the following operation. Fig. 1(b) is a flow chart for showing the procedure of the access method.

[0049] First, the URL that the user wants to get (for example, the URL of the server 42) is input to the browser software, and an instruction is transmitted to the terminal equipment 2 to access the server 42 in step S201.

[0050] In this case, the address replacement section 22 determines whether or not the trigger signal is received from the IP network 3 side in step S202, and if it is received the replacement function is turned on to replace the URL in step S203 and access the URL after the replacement in step S204. On the other hand, if it is determined in step S202 that the replacement function is turned off, the URL (the server 42) as input by the user is accessed without replacement in step S205.

[0051] In accordance with the present embodiment as described above, it is controlled by transmitting the trigger signal from the IP network 3 side to perform the so-called redirection, i.e., replace the address as designated by the browser software 14a with the address of the predetermined information data, and thereby it is possible to control on the service provider side whether or not the redirection is to be executed. Also, in the case of the present embodiment, after the redirection is finished or halted, the user can access the address originally intended and return to the state just before the redirection is performed.

[0052] [Second Embodiment]

(Overall Configuration Of Information Delivery System)

A second embodiment of the present invention will be

explained with reference to drawings. In the case of the present embodiment, an example will be explained in the case where the access system of the present invention is applied to the information delivery system for providing a television combined Web page service. Fig. 2 is an explanatory view for showing the overall configuration of the information delivery system in accordance with the present embodiment.

[0053] As shown in the same figure, the information delivery system in accordance with the present embodiment is comprised mainly of a terminal device 1 provided with a display area 7, a terminal equipment 2 for connecting with an IP network 3, a broadcast station 5 for providing a broadcasting service, and a content server 42 located on the IP network 3.

[0054] The content server 42 is a server computer or software capable of transmitting network content such as HTML (HyperText Markup Language) files, image files, music files and the like as WWW (World Wide Web) documents, and serves to accumulate information such as HTML files and image files and transmit the information in response to a request from client software through the IP network such as the Internet.

[0055] (Configuration Of Terminal Equipment 1) In the case of the present embodiment, the terminal equipments 1 is provided with components required for receiving the television combined Web page service in addition to the components which have been explained in conjunction with the above first embodiment. More specifically speaking, the terminal device 1 is provided with a broadcast content receiving section 6 for receiving broadcast content which is broadcasted through radio waves, a network content acquisition section 12 for acquiring network content which is delivered through the IP network 3 and a combination output section 14 for combining the broadcast content with the network content and outputting the content as combined.

[0056] As illustrated in Fig. 3 in detail, the broadcast content receiving section 6 is provided with a broadcast receiving section 61 for receiving a broadcast signal, a conversion section 62 for modulating a radio wave signal as received, converting it into a predetermined digital signal and outputting the converted signal, and in the case of the

present embodiment the broadcast content receiving section 6 is further provided with an interface 64 in conformity with a data transmission standard such as USB and serves as an adapter device which can be detachably attached to the USB interface (USB terminal) 11 of the terminal device 1. The broadcast receiving section 61 is a circuit for providing a so-called tuner function, and makes it possible to receive the respective channels of ground wave broadcasts, satellite broadcasts, cable TV broadcasts, radio broadcasts and the like by changing the frequency. Incidentally, in the case of the present embodiment, the broadcast content receiving section 6 receives radio waves through an antenna integrated with (or attached to) the section itself. However, it is possible to provide a television antenna connection terminal for connecting with another antenna to catch a broadcast signal.

[0057] In addition to this, the broadcast content receiving section 6 includes a memory 63 for storing an identifier (user ID) unique to this broadcast content receiving section 6 for accessing the IP network 3, and is provided with the functionality of transmitting the user ID in response to a request, which is issued when the network content acquisition section 12 accesses various servers on the IP network 3, and performing authentication.

[0058] The network content acquisition section 12 is a module for receiving network content such as HTML files as described above through the terminal equipment 2 by the use of a communication protocol such as TCP/IP, and in the case of the present embodiment it is realized by a LAN card in conformity with a wireless LAN standard such as IEEE802.11b in order to perform wireless communication.

[0059] In the case of the present embodiment, the combination output section 14 is provided with the functionality of invoking and running browser software 14a which is run in the terminal device 1, and as shown in Fig. 3 the browser software 14a downloads HTML (HyperText Markup Language) files, image files, music files and the like delivered by the content server 42 located on the IP network 3, parses the layout to display and play back them, browses a Web page, and combines and outputs broadcast content within the Web page. More

specifically speaking, the tab included in the network content
D2 (HTML file) delivered by the server 41 are parsed to
produce an area, in which a broadcast content D1 is inserted,
and combine the broadcast content D1 such as a picture in the
area.

[0060] In addition to this, the combination output section 14
is provided with a CM replacement section 14b which replaces
the broadcast content D1 or its portion (in this case, CM
portions D11 and D13) combined in the combination output
section 14 with replacement CM portions D31 and D32 on the
basis of a switching control signal D4 acquired from the IP
network 3.

[0061] More specifically described, the combination output
section 14 is provided with a content parsing section 14d for
parsing the data in the broadcast content D1 which is received
by the broadcast content receiving section 6, a CM detecting
section 14c for detecting a CM portion on the basis of the
result of parsing by the content parsing section 14d and a
replacement CM reading section 14e for reading, as needed, the
replacement CM portions D31 to D33 accumulated in the hard
disk 16, replaces a data portion (the CM portions D11 and D13),
which is designated by the switching control signal D4, with
the replacement CM portions D31 to D33, and outputs the
broadcast content D1 to the browser software 14a.

[0062] Incidentally, the switching control signal D4 in
accordance with the present embodiment is a signal which is
delivered, as needed, from the IP network 3, or for example a
signal which is data periodically acquired from the IP network
3 as a list file providing the times associated with
replacement.

[0063] For example, when the television combined Web page
service which is provided from the server 41 is received by
the terminal device 1 constructed as described above, as shown
in Fig. 3, the broadcast content receiving section 6 first
receives the broadcast content D1 broadcasted by the broadcast
station 5, and the network content acquisition section 12
acquires the network content D2 from the server 41. The
broadcast content D1 is received by the broadcast receiving
section 61 in the broadcast content receiving section 6,

converted by the conversion section 62 into a predetermined digital signal, and then output to the combination output sections 14 and the HDD management section 15 through the USB I/F 64 and USB I/F 11. On the other hand, the network content D2 is received by the network content acquisition section 12, accumulated in the hard disk 16 and transmitted to the browser software 14a of the combination output section 14. Meanwhile, in this case, the switching control signal D4 and the replacement CM portions D31 to D33 are also received from the server 41 and accumulated in the hard disk 16.

[0064] Then, in the combination output section 14, the broadcast content D1 and the network content D2 are combined and output by the browser software 14a. In this case, in the combination output section 14, the content parsing section 14d and the CM detecting section 14c detect a CM portion, and the replacement CM reading section 14e and the CM replacement section 14b replace the CM portion in accordance with the instruction by the switching control signal D4 and transmits the content to the browser software 14a. The browser software 14a outputs the content in which the CM as broadcasted by the broadcast station 5 is replaced with a different CM.

[0065] Meanwhile, in the case of the present embodiment, an example is explained in which the data to be replaced is a CM portion. However, the present invention is not limited thereto, but it is possible to replace the main story of the broadcast content with another program (for example, urgent news and so forth) if necessary. In this case, since the same content can be displayed whatever channel the user views and listens by the browser software, it is possible to display most urgent information in a preferential manner (or forcible manner).

[0066] (Terminal Equipment 2))

The terminal equipment 2 in accordance with the present embodiment is provided with a communication interface 21 such as a wireless LAN for establishing communication with the terminal device 1 in addition to the components which have been explained in conjunction with the above first embodiment. Also, in the case of the present embodiment, the storage section 24 stores as the address of the predetermined information data the URL of a service supporting server 41

which supports the service for delivering television combined Web pages.

[0067] Then, in the operation of accessing the service supporting server 41 in accordance with the present embodiment, the URL that the user wants to get (for example, the URL of the service unsupporting server 42) is input to the browser software, and an instruction is transmitted to the terminal equipment 2 from the terminal device 1, and the address replacement section 22 determines whether or not the trigger signal is received from the IP network 3 side, and if it is received the replacement function is turned on to replace the URL and access the address of the server 41.

[0068] In this case, in the case of the present embodiment, the identifier (an ID and a password) required for receiving the television combined Web page service is acquired from the memory 63 in the broadcast content receiving section 6 and transmitted to the server 41. The server 41 performs user authentication on the basis of the identifier as transmitted in order to confirm that the terminal device 1 is a user which supports this service and start providing the service.

[0069] (Backup System)

The information delivery system in accordance with the present embodiment is provided with a system for transmitting broadcast content and net content accumulated in the hard disk 16 to the backup server 43 on the network and backing up the content. Fig. 4 is an explanatory view for showing this backup system.

[0070] As shown in Fig. 4(a), the terminal device 1 is provided with an HDD management section 15 for inputting and outputting data to and from the hard disk 16, and this HDD management section 15 is connected with the backup server 43 through the IP network 3.

[0071] As shown in Fig. 4(b), the backup server 43 is provided with an original database 44a for accumulating original data which is existing data as already stored therein, and a user database 44b for accumulating user data (difference data) in storage areas which are provided separately for the respective users.

[0072] In addition to this, the backup server 43 is provided

with a receiving section 43a for receiving data which is uploaded from the users, a difference producing section 43b for producing the difference data between the data as received and the original data, and an input/output I/F 43C for inputting and outputting the data to and from the respective databases. Furthermore, the backup server 43 is provided with a difference combining section 43d for producing download data from the original data and the difference data in response to an request from the terminal device 1 side, and a downloading section 43e for transmitting the download data to the terminal device 1.

[0073] On the other hand, as shown in Fig. 4(c), the HDD management section 15 provided in the terminal device 1 is provided with a monitoring section 15e for monitoring the data occupancy ratio in the hard disk 16, an extracting section 15b for extracting data in accordance with data attributes in the hard disk 16 when the data occupancy ratio is greater than a predetermined ratio, an upload section 15a for transmitting the data as extracted to the backup server 43 as upload data.

[0074] Meanwhile, in the case of the present embodiment, the extracting section 15b is provided with a setting table 15d for associating data attributes (extensions, last update date and time) which are set by the user respectively with importance levels, and serves to check the extension and last update date and time of data files as data attributes and extract data in accordance with the data attributes which are set by the user by referring to the setting table 15d. For example, data reaching a predetermined age from its last update time, data having a large data size such as a picture, an image or a sound file, an important document data such as spreadsheet data or word processor data, and the like data are preferentially backed up.

[0075] The operation of the backup system having the structure as described above will be explained. Fig. 5(a) is a flow chart for showing the operation process on the terminal device 1 side, and Fig. 5(b) is a flow chart for showing the operation process on the backup server 43 side.

[0076] First, on the terminal device 1 side, the broadcast content and the network content are viewed and listened while

accumulating the data in the hard disk 16. Each time data is written to the hard disk 16, the data occupancy ratio in the hard disk is monitored by the monitoring section 15e in step S301 in order to determine whether or not the data occupancy ratio is greater than the predetermined ratio in step S302. If it is determined that the data occupancy ratio is not greater than the predetermined ratio in step S302 ("N" in step S302), the process is returned to step S301 in order to repeatedly continue monitoring by the loop process. On the other hand, if it is determined that the data occupancy ratio is greater than the predetermined ratio in step S302 ("Y" in step S302), the process proceeds to step S303.

[0077] In step S303, the file to be uploaded is selected in step S304 by referring to the setting table 15d with respect to the priority level of files, and the file as selected is uploaded to the backup server 43 through the upload section 15a and deleted from the hard disk 16 in step S305.

[0078] On the backup server 43 side in which the data uploaded from the terminal device 1 is received by the receiving section 43a, it is determined whether or not the data occupancy ratio of the user database 44b is greater than the predetermined ratio in step S402. In the case where it is determined that the data occupancy ratio is not greater than the predetermined ratio in step S402 ("N" in step S402), it is determined in step S403 whether or not the accumulation of only the difference is selected by the user, and if the accumulation of only the difference is not selected ("N" in step S403), the data as uploaded is stored as it is in step S405.

[0079] On the other hand, if the accumulation of only the difference is selected ("Y" in step S403), the difference between the data as uploaded and the data stored in the original database 44a is generated in step S404, and the difference data is stored in step S405. When this difference data is generated, in the case where the data as uploaded contains images, sounds and the like, the noise components are extracted and stored as the differences.

[0080] In the case where it is determined that the data occupancy ratio is greater than the predetermined ratio in

step S402 ("Y" in step S402), the user is notified of this determination and prompted to provide the instruction as to whether or not the user area is expanded in step S406. If the user desires area expansion ("Y" in step S407), the area is expanded in step S410, followed by performing the process from the above step S402. In the case where this area is expanded, the charging process is performed in correspondence with the amount of expansion.

[0081] If the user does not desire area expansion in step S407 ("N" in step S407), the user is prompted to select whether or not data in the user database 44b is deleted and whether or not the extraction of a file to be deleted is performed in step S408, and if deleting the file is not desired the backup process is cancelled in step S409. If the user desires to delete the file in step S408, the above setting table 15d is referred to so that data of a low importance is preferentially deleted in step S411, followed by performing the process from the above step S402.

[0082] In accordance with the backup system of the present embodiment, since the data accumulated in the hard disk 16 on the terminal device 1 side is extracted in accordance with the property thereof and uploaded, unnecessary upload can be avoided and the amount of data to be backed up can be reduced in the server. Also, since only the difference from the data which has been already accumulated is stored on the backup server 43 side, it is possible to avoid storing redundant data and make effective use of the storage capacity of the backup server.

[0083] Furthermore, in accordance with the present embodiment, since the data to be backed up is selected with reference to the level of importance, which is set by the user, with reference to the setting table 15d, which is also set by the user's determination, it is possible to perform the operation of backing up data in accordance with the priority level on the basis of the determination of the individual user.

[0084] (Exemplary Modification)

It is possible to make the following exemplary modification to the information delivery system and the information delivery method in accordance with the present

embodiment as explained above. Fig. 6 is an explanatory view for showing the exemplary modification of the present invention.

[0085] For example, as illustrated in Fig. 6, an automobile 10 is equipped with the terminal device 1 for viewing and listening the television combined Web page as described above. In this case, while broadcast content from the broadcast station 5 is received by the broadcast content receiving section 6 of the terminal device 1, network content is received from the service supporting server 41 connected with the IP network 3, and the both contents are combined and output by the browser software 14a.

[0086] Meanwhile, since the automobile 10 moves at a high speed, broadcast radio waves may not sufficiently be received from the broadcast station 5. Because of this, in the present exemplary modification, for example, a number of compact broadcasting towers 51 for rebroadcast are installed on telephone poles, traffic signals, crash barriers and so forth alongside the roadway.

[0087] The compact broadcasting tower 51 is wired or wireless connected to the IP network 3, serves to transmit, as broadcast radio waves, the data which is received as IP packets, and is connected to a rebroadcast server 45 on the IP network 3.

[0088] The rebroadcast server 45 is provided with a broadcast receiving section 45a for receiving radio waves broadcasted from the broadcast station 5, the input/output I/F 45C for storing broadcast content as existing data (original data) in the original database 44a as described above, a rebroadcast section 45b for transmitting the broadcast content as IP packets to the above compact broadcasting tower 51 through the IP network 3.

[0089] Then, in accordance with the rebroadcast server 45 as described above, the broadcast content which is broadcasted from the broadcast station 5 is broadcasted from the above compact broadcasting towers 51 as IP networks, received by the terminal device 1 in the automobile 10, combined with a WEB page delivered from the service supporting server 41 by the browser software 14a, and output.

[0090] Then, also in the present exemplary modification, when a recording operation is performed to the hard disk 16 which is provided in the terminal device 1 in the automobile 10, it is possible to back up the broadcast content recorded to the backup server 43 if the data occupancy ratio of the hard disk 16 is greater than a predetermined ratio. In this case, the original database 44a of the rebroadcast server 45 is shared with the backup server 43 as described above.

[0091] Then, the backup server 43 saves the data which is uploaded from the automobile 10 in the user database 44b as the difference between the uploaded data and the broadcast content which is stored in the original database 44a before rebroadcast, i.e., by extracting noise in the content as rebroadcasted which is generated during reception in the automobile 10.

[0092] In accordance with the present exemplary modification as described above, even in the case of a transportation device (automobile, railway) in which the reception of broadcast content is difficult, it is possible to securely receive broadcast content through the IP network, for example via hotspots, and upload the broadcast content to the backup server 43 on the IP network 3. In this case, on the backup server 43 side, it is possible to save the broadcast content, which is received as existing data before rebroadcast, as original data (existing data), and thereby to securely produce the difference data.

[0093] [Third Embodiment]

(Overall Configuration Of The System)

A third embodiment of the present invention will be explained with reference to drawings. In the present embodiment, an example will be explained in the case where the redirection function is used to perform user support. Fig. 7 is an explanatory view for showing the overall configuration of the support system in accordance with the present embodiment.

[0094] The access system in accordance with the present embodiment is a system for accessing information data sources (the Web servers 42 and the like) which are dispersedly located in an IP network 3, and comprised mainly of browser

software 14a which is run on a terminal device 1 such as a personal computer, and a terminal equipment 2 (CPE: Customer Premises Equipment) for accessing the IP network 3.

[0095] In the case of the present embodiment, communication routes are constructed on the IP network 3 by a gateway 31, a plurality of routers 33 and 34, a DSLAM (Digital Subscriber Line Access Multiplexer) 32a, a DHCP (Dynamic Host Configuration Protocol) server 32b and the like installed in the telephone central office 32.

[0096] Also, in the case of the present embodiment, a communication network is constructed by a PSTN (Public Switched Telephone Networks) 4 together with the IP network 3, and the PSTN 4 and the IP network 3 are connected to each other through gateways 35 and 46. This PSTN 4 is a communications network of a conventional subscription telephone line for connecting own telephone equipment with an intended recipient telephone equipment by a line switching system in order to perform a voice conversation.

[0097] The gateway 31 is a device for connecting the terminal equipment 2 in the user's house selectively with the IP network 3 or the PSTN 4, and makes it possible to perform communication by converting data between different communication mediums and/or between different protocols. More specifically speaking, the data signal from the terminal equipment 2 is transferred to the IP network 3 by data communication, and the voice signal from the terminal equipment 2 is transferred to the PSTN 4 as voice conversation. Incidentally, there is the functionality of connecting with the PSTN 4 and connecting with the IP network 3 via the PSTN 4 when the terminal equipment 2 makes a dial-up connection.

[0098] The DSLAM 32A is a link device for aggregating communication lines and connecting them with a high-speed and high-capacity core network (backbone) as a bridge through routers or the like communication equipment, and used in order to accommodate XDSL lines and the like branching from telephone lines through (MDF: Main Distributing Frame).

[0099] The DHCP server 32b is a server for automatically assigning an IP address and necessary information to a computer which temporarily connects with the network. The DHCP

server is used to save the IP addresses of a gateway server and a DNS server, a subnet mask, the range of IP addresses which can be assigned to clients in order to provide a computer accessing it with this information.

[0100] The server 41 in accordance with the present embodiment serves as a management server for controlling the terminal equipment 2 to start and halt the redirection, and in addition to this, provided with the support service functionality of delivering maintenance and support information.

[0101] (Configuration Of Termination Device) The terminal equipment 2 is an equipment for connecting the terminal device 1 with the IP network 3, and provided with a modulator demodulator function for converting digital data into a voice signal and vice versa when connecting with a telephone line, a storage section 24 for storing the address of predetermined information data, an address replacement section 22 for replacing (redirecting) the address of the information data as input (for example, the service unsupporting server 42) with the address of a predetermined information data (for example, the service supporting server 41) stored in the storage section 24 on the basis of a trigger signal which is received from the IP network 3 side, and an access section 23 for accessing the address which is designated by the browser software 14a or the address which is used for the replacement by the address replacement section 22.

[0102] Particularly, the terminal equipment 2 in accordance with the present embodiment is provided with a connection monitoring section 26 for monitoring whether or not it is possible to connect with the IP network 3, a program running section 25 for running a support program in order to provide the maintenance and support service.

[0103] The program running section 25 is an arithmetic operation unit such as a CPU for running a program, and provided with the functionality of, by running a support program, providing a graphic interface for the user, receiving a signal from the PC 1 side and a responsive signal from the IP network 3 side, performing self-diagnosis such as identifying the cause of failure by analyzing the signal as received, displaying the internal page which is stored in the

storage section 24, displaying the information which is received from the server side by connecting the server and so forth.

[0104] More specifically speaking, the program running section 25 serves to read a local page described in an HTML file or the like from the storage section 24 as the graphic interface, request a signal from the PC 1 side and a responsive signal from the IP network 3 side by running a program described in a CGI, Java (registered trademark) or the like, identify the failure location with reference to the response state indicated by the signal as received, redirect the internal page (local support page) or the information data on the server side (server support page) in accordance with the failure as identified, and report the failure condition to the user by displaying them by the browser software 14a.

[0105] In addition to this, the program running section 25 is provided with the functionality of recording in the storage section 24 the information as a log about the input to the respective support page and the answer to this input. Furthermore, the program running section 25 is provided with the functionality of analyzing the keywords in the passage which is input by the user, searching the storage section 24 for the answers to the keywords and output the answers. By this configuration, in the case of the present embodiment, the user can chat with a character which is displayed in the support page, and the content of the chatting is recorded as a talking log.

[0106] In the case of the present embodiment, the storage section 24 serves to save the address of the information data as the destination for replacement and the address of the original information data which is replaced during the redirection by the address replacement section 22, and in addition to this, provided with the functionality of storing programs, internal pages and other data to read and output the data respectively in response to a request from the program running section 25.

[0107] More specifically speaking, the storing section 24 stores internal pages such as a local support page which is described in the HTML of the like, and saves the address of

this internal page as the address of the predetermined information data for replacement. Thereby, it is possible to set the destination of the redirection by the address replacement section 22 to the terminal equipment 2 itself and provide necessary information even when the communication line is disconnected.

[0108] Furthermore, the storage section 24 is provided with the functionality of recording as a talking log the information which is input or output through the support screen, and the functionality of the request for reading and outputting the talking log as recorded in response to the service supporting server (management server) 41 or a support center.

[0109] The address replacement section 22 includes a trigger signal receiving section 22a for receiving the trigger signal, receives the release control signal, performs the replacement in response to the trigger signal and halts the replacement in response to the release control signal. Also, in the case of the present embodiment, there is the functionality of automatically performing the replacement with the address of the above internal page as the destination of redirection when it is determined that the connection with the IP network 3 cannot be made by the connection monitoring section 26.

[0110] The access section 23 in accordance with the present embodiment is provided with the functionality of, when the IP network 3 cannot be directly connected, making a dial-up connection with the PSTN 4 in response to the request from the program running section 25 or the address replacement section 22, accessing the IP network 3 through a bypass communication line via the PSTN 4, and receiving the support service provided by the management server 41. In addition to this, the access section 23 is provided with the DHCP server functionality of issuing a private IP for itself when the DHCP is not operating properly, and the switching functionality of switching a bridge connection to a connection through a router.

(Configuration of Management Server)

In the case of the present embodiment, the management server 41 as described above is provided with the functionality as an AI call center and capable of accepting

inquiries (the information on diagnostic items and symptoms) from the user, and outputting the support information (diagnosis message) in accordance with the types of the inquiries and the combination thereof. Figs. 8 and 9 show the structure of the functions provided in the AI call center which is provided in the management server.

The management server 41 is provided with the Web server functionality 41a of delivering a Web page such as a support page through the IP network 3, and an application running section (APL) 41b for running the various applications. This APL 41b is connected to the database group for analysis, and it is possible to run an inference application for generating the support information by the use of the database information. [0113] In the case of the present embodiment, the database group for analysis as discussed above is comprised of a customer information database 41c, a provisioning information database 41d and a rule definition file database 41e. The customer information database 41c is a database for accumulating the authentication information (user IDs and passwords) and residences of the respective users, the information on the equipments used by the respective users, and so forth. The provisioning information database 41d is a database for accumulating the information on the communication settings which are set in advance on the communication network side and in the user's houses. Also, the rule definition file database 41e is a database for storing a file in which is defined the rules for associating events (diagnostic items, symptoms, customer information, communication environment, device setting information and the like), which are input by the users, with support information to be provided as advice. [0114] The definition of the rules includes rules for determining failures (providing classifications) with respect to the failure locations and failure types identified on the basis of the events, and associating the diagnosis of each failure as classified with advice (support information) for fixing the failure. Meanwhile, this rule definition file is updated by comparing the result of inference with the result of the practical failure investigation and the like in order to adjust the differences therebetween.

[0115] Then, after the authentication of the user, the inference application analyzes the request from the user, acquires the setting information of the respective devices (the CPE 2, the DSLAM 32A, the DHCP32B, the router 33 and 34 and the like) on the IP network 3 in accordance with the result of the analysis, performs inference by the use of the rule definition file on the basis of the information as acquired and the database information, and delivers appropriate support information to the user by the Web server functionality 41a.

[0116] More specifically speaking, the inference application is provided with the request analyzing functionality of analyzing the request from the user, the database information acquiring functionality of acquiring necessary information by searching the respective databases as described above, and the device setting information acquiring functionality of acquiring the setting information of the respective devices on the communication route.

[0117] The request analyzing functionality is implemented as a module serving to determine the database information and the device setting information to be acquired on the basis of the request such as inquiries (diagnostic items, symptoms) received from the user. The database information acquiring functionality is implemented as a module serving to search the customer information database 41c and the provisioning information database 41d with respect to the MAC address and authentication information of the accessing user and acquiring the data associated therewith. The device setting information acquiring functionality is implemented as a module serving to collect the setting information of the respective devices on the communication route through the communication network on the basis of the diagnostic items which are analyzed by the request analyzing functionality.

[0118] (Support Method)

The support method can be carried out by operating the support system having the structure as described above. Fig. 10 is a flow chart for showing the operation of the support system in accordance with the present embodiment.

[0119] First, in a stand-by state, the terminal equipment

(CPE) 2 monitors whether or not it is possible to connect with the IP network 3 by the use of the connection monitoring section 26 in order to determine whether or not the communication environment is normal in steps S501 and S502. More specifically speaking, it is monitored whether or not the DHCP is operating properly, whether or not links are established properly, and whether or not a response is properly returned in response to ping. If the communication environment is normal ("N" in step S502), monitoring in step S501 is periodically repeated by a loop process.

[0120] In the case where the communication is disconnected ("Y" in step S502), the connection monitoring section 26 determines whether or not there is a DHCPDISCOVER (a signal output when a client desires to acquire an IP address and the like from a server) from the PC 1 in step S503. If this DHCPDISCOVER is not output ("N" in step S503), the process is returned to step S501 in which monitoring is continued, and if there is a DHCPDISCOVER ("Y" in step S503), a Private IP is issued by the DHCP server functionality of the access section 23, or in the case where the PC 1 is connected by a bridge connection, the connection is switched to a connection through a router, so that the communication with the PC 1 is made in step S504.

[0121] Next, it is determined whether or not there is an HTTP request (for accessing information data on the IP network 3) from the PC 1 in step S505. If there is no HTTP request ("N" in step S505), the process enters the stand-by state by a loop process, and if there is an HTTP request ("Y" in step S505), the program running section 25 is invoked to perform the redirection to a local support page (an internal page) in the storage section 24 by the address replacement section 22. Incidentally, since the DHCP is not operating properly in this case, a local support page indicative of the fact is displayed.

[0122] Furthermore, if the user wants to call for an investigation into the cause and the like, as shown in Fig. 11, the user starts chatting with a character for local support in step S507. More specifically speaking, the program running section 25 analyzes keywords in the passage input to a text box 81, searches the storage section 24 for an answer relating

to the keyword, and outputs the answer. For example, with regards to negative keywords such as "unable to connect", the symptom is identified by displaying text such as "apology" and "question" in order to provide the cause and status report as estimated in relation to it. In this case, it is notified that a router failure may occur on the network side and that we are waiting for information from the support center.

[0123] The text data as input and output during chatting is recorded in the storage section 24 as the talking log data in step S508. After connecting with the server by dial-up, the talking log data is uploaded to the management server 41 and used to the inference for identifying the cause, and the result of the inference is reflected in the support page 8 and used as a reference for the manned support by the support center.

[0124] Next, the user is prompted to select whether or not he requests a user support in step S509. More specifically speaking, it is possible for the user to select by clicking or not clicking a button for calling the server support which is displayed in the support page 8. In the case where the user does not request the user support ("N" in step S509), the process is returned to step S507 in which the process is performed to continue or terminate the local support. Conversely, in the case where the user requests the user support ("Y" in step S509), the address replacement section 22 performs the redirection to the server support page 41a in the management server 41 in order to start making a dial-up connection by the access section 23 to connect with the management server 41 through the PSTN 4 in step S601.

[0125] In advance of accessing the server support page 41a, the management server 41 requests the input of a user ID and a password in order to perform an authentication process in step S602. When this authentication process is performed, the user is identified by referring to the customer information database 41c. If the authentication is successful, the server support page is transmitted and displayed by the browser software 14a as the server support page 41a in steps S603 and S511. This server support page 41a includes, as illustrated in Fig. 12, an input section 82a provided with check boxes for

checking diagnostic items and a text box for inputting other symptoms, and makes it possible to transmit the input data to the management server 41 as a customer request by pushing a diagnosis start button 82b in steps S512 and S513.

[0126] The management server 41 performs the inference process by the inference application in steps S604 to S607. More specifically speaking, the database information and the device setting information to be acquired are determined in step S604 on the basis of the customer request (diagnostic items, symptoms) as received from the user, and the customer information database 41c and the provisioning information database 41d are searched for acquiring associated data by the database information acquiring functionality with reference to the MAC address and the authentication information of the accessing user in accordance with the determination in step S605. Next, the setting information of the respective devices on the communication route is collected by the device setting information acquiring functionality through the communication network on the basis of the diagnostic items which are analyzed by the request analyzing functionality.

[0127] Next, the inference application performs inference in step S607 by the use of the rule definition file on the basis of the device setting information and the database information (the customer information and the provisioning information) as acquired. Namely, the failures as identified are classified with reference to the rule definition in regard to the locations and types of the respective failures which are identified on the basis of the events, followed by generating the diagnosis for each failure as classified and the advice (support information) for fixing the failure.

[0128] Then, the support information as generated is reflected in the server support page 41a and displayed by the browser software 14a on the user side. In this case, on the assumption that a failure occurs in a router on the network, the failure occurring location and the present situation are reported as illustrated in Fig. 13.

[0129] Thereafter, the program running section 25 on the CPE 2 side inquires of the user as to whether or not the trouble has been fixed in step S515, and if fixed the support ends,

otherwise the connection with an operator is requested in step S516 to connect with the operator in step S608 and start a manned support in steps S609 and S517.

[0130] When the operator provides the support, it is possible to enhance the advice and support by the use of the talking log recorded in step S508 and the result of the inference of the server support.

[0131] (Actions And Effects Of The Present Embodiment)

With the present embodiment as has been discussed above, in accordance with the present invention, when a failure occurs in the communication line, it is possible to perform the redirection to a local support page stored in the terminal equipment 2, and deliver necessary information such as the maintenance information and the support information to the user even in the environment in which the communication connection is unavailable.

[0132] Particularly, in the case of the present embodiment, the redirection is performed to the management server 41 through the PSTN 4 by dial-up, and thereby it is possible to deliver the support information from the management server 41 even in the case where a failure occurs in the IP network 3.

[0133] Then, the management server 41 in accordance with the present embodiment can acquire necessary information for identifying the failure location through the input operation of the user by letting the user input the diagnostic items relating to communication through the server support page 41a, inferring and delivering the support information in accordance with the types and combination of the diagnostic items as input, and thereby it is possible to improve the quality of support.

[0134] This inference process is performed by the use of the customer information, the provisioning information and the setting information of the respective device on the communication route, and thereby it is possible to identify the target user of the support, analyze the correlation between the failures which occur and the users, and provide a more improved support.

[0135] Also, in accordance with the present invention, the chatting log data which is input and output through the

support page 8 is recorded and transmitted to the management server 41, and thereby it is possible to dialogically collect the opinions of the users, compile the opinions in the management server, and then enhance the support.

5   [0136] As a result, in the case of the present embodiment, since the local or server support can be automatically provided by the AI call center functionality, it is possible for the user to perform self-diagnosis by himself without inquiring of the call center about the communication and line

10   status. For this reason, it is possible to avoid a prolonged service due to trouble, for example, miscommunication relating to telephone inquiries, and lessen the variation in the quality of the response and advice resulting from the fluctuation of the experience levels of operators. On the

15   other hand, on the service provider side, it is possible to reduce the number of inquiries accepted by the call center and the employment cost and equipment expenses required for the operation in the call center.

20   INDUSTRIAL APPLICABILITY
     [0137] In accordance with the present invention as has been discussed above, when accessing the information data, which is dispersedly located in an IP network such as the Internet constructed by connecting communication lines with each other,

25   from an access device such as a modem or a terminal adapter through the communication lines, it is possible to appropriately select the timing and target users for performing the redirection to other information by the control operation on the service provider side, and diversify the

30   services by the redirection in accordance with the type of the services.